



Index

Index for Volume 12

Bold type is used for contributors to this volume. The suffix e indicates editorial comment; c, a conference report; r, a book review. Abbreviations: ASR, alkali silicate reaction; fr, fibre reinforced; lw, lightweight; PFA, pulverised fuel ash.

- Abrasion resistance
 - steel fr mortar overlay for pavements, 176-8
- Accelerated testing
 - ageing of polymer-modified glass fr cement, 99-100
- Aerated concrete
 - density and strength, 79-85
- Afridi, Musarrat Ullah Khan**, Ohama, Iqbal and Demura, 'Morphology of $\text{Ca}(\text{OH})_2$ in polymer-modified mortars and effect of freezing and thawing action on its stability', 163-73
- Agate, 187-8, 190
- Ageing
 - cement-stabilised fly ash base courses, 289, 290
 - effect on fr concrete under flexure, 44-5
 - fibre cement composites, 21, 23-4, 233-44
 - glass fr cement, 55, 58-9, 99-100
- Aggarwal, L. K.** and Singh, 'Effect of plant fibre extractives on properties of cement', 103-8
- Aggregates, siliceous, 185-90
- Aïtcin, P.-C.**, Chanvillard and Banthia, 'Normalized load-deflection curves for fibre reinforced concrete under flexure', 41-5
- Akers, S. A. S.** and Partl, 'Hygral and thermal expansion/shrinkage properties of asbestos-free fibre cement', 19-27
- Akers, S. A. S.**, Pirie, Glasser and Schmitt-Henkoe, 'Durability studies and characterization of the matrix and fibre-cement interface of asbestos-free fibre-cement products', 233-44
- Al-Feel, J. R.** and **Al-Ta'an**, 'Evaluation of shear strength of fibre-reinforced concrete beams', 87-94
- Alkali aggregate reaction, see alkali silica reaction
- Alkali silica reaction, 64r
 - assessment of affected structures, 191-201, 203-10
 - avoidance in choice of siliceous aggregate, 185-6, 188-90
 - high-volume fly ash concrete, 257-7
- Al-Mandil, M. Y.**, Khalil, Baluch and Azad, 'Performance of epoxy-repaired concrete under thermal cycling', 47-52
- Al-Noury, I.**, Soliman, Mirza and Huq, 'Density and strength characteristics of lightweight mortar', 79-86
- Al-Ta'an, S. A.** and **Al-Feel**, 'Evaluation of shear strength of fibre-reinforced concrete beams', 87-94
- Aluminium
 - high-alumina cement, 223-4r
- Aramid fr mortar, 29-39
- Atzeni, C.**, Massidda and Sanna, 'Mechanical properties of epoxy mortars with fly ash as filler', 3-8
- Autoclaved cellulose fr cement composites, 237-9, 241, 243
- Azad, A. K.**, **Al-Mandil**, Khalil and Baluch, 'Performance of epoxy-repaired concrete under thermal cycling', 47-52
- Backer, S.**, Wang and Li, 'Tensile properties of synthetic fiber reinforced mortar', 29-40
- Bagasse fr composites, 123-4, 131-3
- Balasubramanian, K.**, Parameswaran and Krishnamoorthy, 'Behaviour of high volume fibre cement mortar in flexure', 293-301
- Baluch, M. H.**, **Al-Mandil**, Khalil and Azad, 'Performance of epoxy-repaired concrete under thermal cycling', 47-52
- Banana fibres, 118-19, 120
 - cotton-polyester composites, 128-30, 131
- Banthia, N.**, Chanvillard and Aïtcin, 'Normalized load-deflection curves for fibre reinforced concrete under flexure', 41-5
- Beams
 - fr concrete, 87-93, 211-18
- Berry, E. E.**, Hemmings and Cornelius, 'Mechanisms of hydration reactions in high volume fly ash pastes and mortars', 253-61
- Bijen, J.**, 'Improved mechanical properties of glass fibre reinforced cement by polymer modification', 95-101
- Bijen, J. M.**, Fraay and Vogelaar, 'Cement-stabilized fly ash base courses', 279-91
- Blast furnace slag, 231-2e
- Book reviews, 63-4r, 137r, 219-22r
- Bridges, 304-5c
 - assessment of ASR, 203-10
 - durability, 66-7c
- Cabrera, J. G.** and Claisse, 'Measurement of chloride penetration into silica fume concrete', 157-61
- Calcium chloride as setting accelerator, 106-7
- Calcium hydroxide
 - content in fly ash-cement pastes, 247, 250
 - crystal morphology, 163-73
- Capillary under conductivity, 21-2, 24-6
- Carbonation
 - fly ash concrete, 268, 269, 270
 - in Hatschek process, 236-7, 242-3
- Carette, G. G.**, Feldman and Malhotra, 'Studies on mechanism of development of physical and mechanical properties of high-volume fly ash-cement pastes', 245-51
- Carette, G. G.**, Sivasundaram and Malhotra, 'Long-term development of high-volume fly ash concrete', 263-70
- Cellulose fr cement, 233-44
- Cement (see also fibre cement composites)
 - calcium aluminate (high-alumina), 223-4r
 - pozzolanic fillers, 231-2e
- Cement & Concrete Composites*, 1-2e
- Chalcedony, 187, 190
- Chanvillard, G.**, **Banthia** and **Aïtcin**, 'Normalized load-deflection curves for fibre reinforced concrete under flexure', 41-5
- Chert, 188, 190
- Chloride
 - penetration into silica fume concrete, 157-61
 - permeability of high-volume fly ash concrete, 268, 269, 270, 274-5
- Claisse, P. A.** and **Cabrera**, 'Measurement of chloride penetration into silica fume concrete', 157-61
- Coir fr composites, 103-8, 118-19, 120, 124-9, 131

- Compaction of wood fr cement, 151-5
 Composite structures, 65-6c
 Compressive strength
 epoxy mortar, 4-8
 epoxy-repaired concrete, 50-1
 fly ash cement pastes, 249, 250
 fly ash cement-stabilised base courses, 284-5, 286-90
 fly ash concrete, 109-15, 265, 266, 269
 lw mortar, 79-85
 natural fr cement, 104, 106-8
 Conferences and symposia
 forthcoming, 69-75c, 143-8c, 225-30c, 307-13c
 reports, 65-7c, 139-42c, 223-4c, 303-6c
 Contracts for siliceous aggregates, 185-90
Cornelius, B. J., Berry and Hemmings, 'Mechanisms of hydration reactions in high volume fly ash pastes and mortars', 253-61
 Corrosion, see degradation of concrete
 Cotton fr composites, 119-21, 128-30
Courtier, R. H., 'The assessment of ASR-affected structures', 191-201
Coutts, R. S. P. and Warden, 'Effect of compaction on the properties of air-cured wood fibre reinforced cement', 151-6
 Cracking
 due to ASR, 191-201, 203-10
 due to restrained shrinkage in ferrocement, 9-17
 failure modes in fr concrete deep beams, 211-18
 fibre cement composites, 235-9
 fr concrete under flexure, 41-5
 glass fr cement, 56-8
 rupture modulus of glass fr polymer cement, 96-100
 synthetic fr mortar, 29-39
 Cristabolite, 187, 190
 Curing
 effect on chloride penetration, 161
 epoxy mortar with fly ash filler, 3-8
 PFA concrete, 109-15
 Degradation of concrete, 137r, 149-50e, 157-61
Demura, Katsunori, Afridi, Ohama and Iqbal, 'Morphology of $\text{Ca}(\text{OH})_2$ in polymer-modified mortars and effect of freezing and thawing action on its stability', 163-73
 Design of concrete structures, 220-1r
 Drying shrinkage, 9-17, 19-27
 Durability, 63-4r (see also freeze-thaw cycling)
 bridges, 66-7c, 207
 fibre cement composites, 233-44
 fly ash concrete, 271-7
 testing, 77-8e, 139-40c, 176-84
 Elasticity modulus
 epoxy mortar with fly ash filler, 5-7
 fibre cement composites, 239, 240
 fly ash composites, 249, 250, 266-7, 268, 269
 Epoxy mortar, 3-8
 Epoxy resins
 fibre polymer composites, 121-3
 sealant for ASR crack damage, 208-9
 strength of repairs, 47-52
 Expansion
 due to ASR, 191-201
 fibre cement composites, 19-27
 Failure modes in fr concrete deep beams, 211-18
Feldman, R. F., Carrette and Malhotra, 'Studies on mechanism of development of physical and mechanical properties of high-volume fly ash-cement pastes', 245-51
 Ferrocement
 behaviour in flexure, 293-301
 cracking due to restrained shrinkage, 9-17
 Fibre cement composites
 compaction of wood fr cement, 151-5
 effect of water-soluble plant extracts, 103-8
 expansion/shrinkage properties, 19-27
 glass fr cement, 53-61
 polypropylene fr cement, 232e
 tensile properties, 29-39
 Fibre cement mortar
 behaviour in flexure, 293-301
 Fibre orientation in glass fr cement, 54-5, 56-8
 Fibre polymer composites, 117-34
 Fibre-reinforced concrete, 140c, 303-4c
 behaviour of deep beams, 211-18
 load-deflection curves under flexure, 41-5
 shear strength, 87-93
 Flexural strength
 epoxy mortar, 4-8
 epoxy-repaired concrete, 50
 fibre cement composites, 239, 240
 fibre polymer composites, 121-32
 fr concrete deep beams, 214-17
 glass fr cement, 59
 steel fr cement mortar, 293-301
 steel fr mortar overlay, 178-84
 wood fr cement, 151-5
 Flint, 188, 190
 Fly ash composites, 231-2e
 cement-stabilised, 279-91
 curing of PFA concrete, 109-15
 epoxy mortar, 3-8
 high-volume cement pastes, 245-50, 253-61
 high-volume concrete, 140c, 263-70, 271-7
 Foaming agents, 79, 84
Fraay, A., Bijen and Vogelaar, 'Cement-stabilised fly ash base courses', 279-91
 Fracture, see cracking
 Fracture toughness
 fr concrete, 303-4c
 wood fr cement, 151-5
 Freeze-thaw cycling
 high-volume fly ash concrete, 271-3
 morphology of calcium hydroxide, 164-6, 170-3
 Fresh concrete, 305-6c
Fwa, T. F. and Paramasivam, 'Thin steel fibre cement mortar overlay for concrete pavement', 175-84
 Glass fr composites
 epoxy-jute laminates, 121-3
 polyester, 129, 131
 polymer-modified, 95-101
 theory, 53-61
Glasser, F. P., Pirie, Schmitt-Henco and Akers, 'Durability studies and characterization of the matrix and fibre-cement interface of asbestos-free fibre-cement products', 233-44
 Hardboards, 131-3
 Hatschek process, 241-2
 Heavyweight concrete, 140c
Hemmings, R. T., Berry and Cornelius, 'Mechanisms of hydration reactions in high volume fly ash pastes and mortars', 253-61
Huq, Shamsul, Al-Noury and Mirza, 'Density and strength characteristics of lightweight mortar', 79-86
 Hydration reaction
 fibre cement composites, 241-2
 fly ash pastes, 249-50, 253-61
 Impact strength
 fibre polymer composites, 121-31
 polymer-modified glass fr cement, 96-8
Ineson, P. R., 'Siliceous components in aggregates', 185-90
Ipomoea carnea fr polyester composites, 133
Iqbal, Yoshihiko, Afridi, Ohama and Demura, 'Morphology of $\text{Ca}(\text{OH})_2$ in polymer-modified mortars and effect of freezing and thawing action on its stability', 163-73
 Jasper, 188, 190
 Jute fr polymer composites, 121-3
Kameswara Rao, C. V. S. and Sachan, 'Behaviour of fibre reinforced concrete deep beams', 211-18
Khalil, H. S., Al-Mandil, Baluch and Azad, 'Performance of epoxy-repaired concrete under thermal cycling', 47-52
Krishnamoorthy, T. S., Parameswaran and Balasubramanian, 'Behaviour of high volume fibre cement mortar in flexure', 293-301

- Laminates, 121-3
- Lee, S. L.,** Mani and Tam, 'Influence of high early temperatures on properties of PFA concrete', 109-15
- Li, V. C.,** Wang and Backer, 'Tensile properties of synthetic fiber reinforced mortar', 29-40
- Lightweight concrete, 140c
- Lightweight mortar, 79-85
- Load-deflection curves
fr concrete, 41-5, 217
steel fr cement mortar, 297-300
- Malhotra, V. M.,** 'Durability of concrete incorporating high volume of low-calcium (ASTM Class F) fly ash', 271-7
- Malhotra, V. M.,** Feldman and Carette, 'Studies on mechanism of development of physical and mechanical properties of high-volume fly ash-cement pastes', 245-51
- Malhotra, V. M.,** Sivasundaram and Carette, 'Long-term development of high-volume fly ash concrete', 263-70
- Mani, A. C.,** Tam and Lee, 'Influence of high early temperatures on properties of PFA concrete', 109-15
- Massidda, L.,** Atzeni and Sanna, 'Mechanical properties of epoxy mortars with fly ash as filler', 3-8
- Microstructure
banana-cotton-polyester composite, 128, 130
calcium hydroxide crystal morphology, 163-73
coir fibre surface, 125-6
fibre cement composites, 233-44
fly ash pastes and mortars, 7, 253-61
natural fibres, 118-19, 120
sands and concrete, 185, 186
- Mirza, Wajahat, H.,** Al-Noury and Huq, 'Density and strength characteristics of lightweight mortar', 79-86
- Modelling of concrete structures, 219-20r
- Mortar
hydration reaction in fly ash-cement composite, 253-61
synthetic fr, 29-39
- Mukherjee, P. S.,** Satyanarayana, Sukumaran, Pavithran and Pillai, 'Natural fibre-polymer composites', 117-36
- Natural fibres (see also individual fibres)
effect of water-soluble extracts on fr cement, 103-8
fibre-polymer composites, 117-34
- Ohama, Yoshihiko,** Afridi, Iqbal and Demura, 'Morphology of $\text{Ca}(\text{OH})_2$ in polymer-modified mortars and effect of freezing and thawing action on its stability', 163-73
- Ong, K. C. G.** and Paramasivam, 'Cracking of ferrocement due to restrained shrinkage', 9-17
- Opal, 187, 189, 190
- Palmyrah fr polymer composites, 118-19, 120
- Paramasivam, P.** and Fwa, 'Thin steel fibre cement mortar overlay for concrete pavement', 175-84
- Paramasivam, P.** and Ong, 'Cracking of ferrocement due to restrained shrinkage', 9-17
- Parameswaran, V. S.,** Krishnamoorthy and Balasubramanian, 'Behaviour of high volume fibre cement mortar in flexure', 293-301
- Partl, M.** and Ackers, 'Hygral and thermal expansion/shrinkage properties of asbestos-free fibre cement', 19-27
- Paste
hydration reaction in fly ash-cement composite, 253-61
- Pavements
steel fr mortar overlay, 175-84
- Pavithran, C.,** Satyanarayana, Sukumaran, Mukherjee and Pillai, 'Natural fibre-polymer composites', 117-36
- Permeability
fly ash-cement pastes, 248-9
high-volume fly ash concrete, 268, 269, 270, 274-5
- pH control of pozzolanic reaction, 279-91
- Phenol-formaldehyde composites, 123-4, 131-3
- Pillai, S. G. K.,** Satyanarayana, Sukumaran, Mukherjee and Pavithran, 'Natural fibre-polymer composites', 117-36
- Pirie, B. J.,** Glasser, Schmitt-Henco and Akers, 'Durability studies and characterization of the matrix and fibre-cement interface of asbestos-free fibre-cement products', 233-44
- Pollution
atmospheric, 137r
environmental, 149-50e
- Polyester composites
coir fr, 124-9
glass and jute laminates, 121-3
- Polyethylene fr mortar, 29-39
- Polymer composites, 220r
glass fr cement, 95-101
morphology of calcium hydroxide, 163-73
- Poly(methyl methacrylate) composites, 131-2
- Polypropylene fr composites, 29-39, 232e
- Pore size distribution of fly ash-cement pastes, 247-8
- Porewater
movement in fibre cement composites, 19-27
role of pore solution in pozzolanic hydration reaction, 255-60
- Porosity
fibre cement composites, 239-41
fly ash pastes and mortars, 248, 249, 253-5
- Pozzolans, 63r
cement fillers, 231-2e
cement-stabilised pozzolanic reaction in fly ash base courses, 279-91
hydration reaction in fly ash cement composite, 253-61
- Prestressed concrete bridges, 203-10
- Proctor, B. A.,** 'A review of the theory of GRC', 53-61
- Quartz, 187, 189
filler in epoxy mortar, 3-8
- Reinforced concrete
ASR in bridges, 203-10
behaviour of deep beams, 211-18
chloride corrosion, 157-61
- Relative humidity and shrinkage, 21-3
- Repair
bridges affected by ASR, 208-10
steel fr mortar overlay for pavements, 175-84
strength of epoxy-repaired concrete under thermal cycling, 47-52
- Rheology of fresh cement and concrete, 141-2c
- Rice straw polymer composites, 131-3
- Rupture, see cracking
- Sachan, A. K.** and Kameswara Rao, 'Behaviour of fibre reinforced concrete deep beams', 211-18
- Sanna, U.,** Atzeni and Massidda, 'Mechanical properties of epoxy mortars with fly ash as filler', 3-8
- Satyanarayana, K. G.,** Sukumaran, Mukherjee, Pavithran and Pillai, 'Natural fibre-polymer composites', 117-36
- Schmitt-Henco, C.,** Pirie, Glasser and Akers, 'Durability studies and characterization of the matrix and fibre-cement interface of asbestos-free fibre-cement products', 233-44
- Setting time of natural fr cement, 103-8
- Shear strength of steel fr concrete beams, 87-93
- Shrinkage, 9-17, 19-27
- Silanes, 209, 210
- Silica fume, 63r
concrete, 140c, 157-61
- Siliceous aggregates, 185-90

- Singh, Jaswinder** and Aggarwal, 'Effect of plant fibre extractives on properties of cement', 103-8
- Sisal fibres**
 epoxy composites, 123
 fibre-polymer composites, 118-19, 120
 fr cement, 103-8
 polyester composites, 131
- Sivasundaram, V.**, Carette and Malhotra, 'Long-term development of high-volume fly ash concrete', 263-70
- Steel fr concrete**
 behaviour of deep beams, 211-18
 load-deflection curves under flexure, 41-5
 shear strength, 87-93
- Steel fr mortar**, 175-84, 293-301
- Strain distribution in fr concrete deep beams**, 214-17
- Stress-crack separation**
 synthetic fr mortar, 29-39
- Stress-strain behaviour**
 epoxy mortar, 4-8
 glass fr cement, 53-60
 natural fibres, 118, 119
 strain distribution in fr concrete deep beams, 214-17
- Structural damage due to ASR**, 191-201
- Structures**
 composite, 65-6c
 design, 220-1r
- Sukumaran, K.**, Satyanarayana, Mukherjee, Pavithran and Pillai, 'Natural fibre-polymer composites', 117-36
- Superplasticisers**, 140-1c
- Talipot fr polymer composites**, 119, 120
- Tam, C. T.**, Mani and Lee, 'Influence of high early temperatures on properties of PFA concrete', 109-15
- Tensile strength**
 fibre-polymer composites, 121-32
 glass fr cement, 59
 PFA concrete, 109-15
 polymer-modified glass fr cement, 95-101
 synthetic fr mortar, 29-39
- Testing methods**
 assessment of ASR in prestressed concrete, 207-8
 drying shrinkage of ferrocement, 10-13
 durability, 77-8e, 139-42c, 176-84
 fracture toughness of fr concrete, 303-4c
 non-destructive, 267-8, 269
 rheology of cement and concrete, 141-2c
- Thermal effects**
 cement-stabilised fly ash base courses, 286-90, 291
 expansion/shrinkage of fibre cement composites, 19-27
 heat of hydration in fly ash concrete, 265-6, 267, 269
 strength of epoxy-repaired concrete, 47-52
 temperature matched curing of PFA concrete, 109-15
- Tordoff, M. A.**, 'Assessment of pre-stressed concrete bridges suffering from alkali-silica reaction', 203-10
- Toughness index**
 composite structures, 65-6c
 fr concrete under flexure, 41-5
- Tridymite**, 187, 190
- Vogelaar, P.**, Fraay and Bijen, 'Cement-stabilized fly ash base courses', 279-91
- Wang, Y.**, Li and Backer, 'Tensile properties of synthetic fiber reinforced mortar', 29-40
- Warden, P. G.** and Coutts, 'Effect of compaction on the properties of air-cured wood fibre reinforced cement', 151-6
- Water**
 absorption rate from conductivity measurement, 21-2, 24-6
 porewater movement in fibre cement composites, 19-27
 pozzolanic hydration reaction, 255-60
- Water/cement ratio**
 effect on density and strength of lw mortar, 79-81, 84-5
 effect on fr concrete under flexure, 43-4
 effect in Hatschek process, 241-2
 fly ash-cement pastes, 247, 249-50
- Weathering**, see ageing
- Wheat straw polyester composites**, 130-1
- Wood fr cement**, 151-5
- Workability of synthetic fr mortar**, 32, 33